

GoCalifornia Statewide Strategies

The key premise of *GoCalifornia* is that investments in mobility throughout the pyramid below yield significant improvements in congestion relief. Each of the elements of the pyramid produces value in and of themselves. A synergistic improvement in mobility will occur when strategic investments in each of the elements are coordinated among the elements.



The base of the pyramid is as important as the apex. System monitoring and maintenance and preservation are the basic foundation upon which the other strategies are built. System expansion and completion will provide the desired mobility benefits to the extent that investments in and implementation of the strategies below it establish a solid platform.

In addition to congestion reduction, *GoCalifornia* is intended to enhance the following transportation system performance outcomes:

- Accessibility
- Economic Development
- Environmental Quality
- Equity
- Mobility
- Productivity
- Reliability
- Return on Investment
- Safety
- System Preservation

The California Transportation Commission (CTC) has incorporated the application of these performance measures into the 2006 State Transportation Improvement Program (STIP) guidelines. Caltrans has been applying these performance measures to State Highway Operations and Protection Program (SHOPP) projects and will enhance its efforts with the 2006 SHOPP. In the following discussion of the *GoCalifornia* strategies, achieving measurable progress on these performance measures is part and parcel of implementing the strategies.

System Monitoring and Evaluation

Many of California's transportation networks are mature systems that are nearly built-out. System monitoring and evaluation are critical to determining what is happening with the existing system, where key investments need to be made to preserve the existing system, and where new investments and approaches are needed to expand capacity.

Specific strategies to improve system monitoring and evaluation include:

- *Improve System Monitoring and Evaluation*—On both the state highway system and key urban roadway networks loop detectors provide essential baseline data on how traffic and transit are flowing. Maintenance and expansion of these detectors are critical to providing the type of traffic information that enables 511 and travel time information on changeable message signs (CMS) to provide travelers with key information. In addition, these detectors generate basic travel data that helps calculate congestion delay. Upgrading and maintaining loop detectors on the state system is an element of the SHOPP and will be a priority in 2006.
- *Implement the Transportation Management System (TMS) Master Plan*—The TMS Master Plan is a basic building block of *GoCalifornia*. The TMS Master Plan focuses on monitoring congestion and delay on key freeway corridors and relies on the loop detectors described above. The TMS Master Plan will be implemented through the 2006 SHOPP and key elements are included in the Congestion Relief Concepts. Over the 20-year horizon of *GoCalifornia*, transportation management system efforts are expected to provide a 20-percent reduction in congestion delay, which is incorporated into the intelligent transportation systems strategy.

Maintenance and Preservation

Pavement preservation may not be as exciting to implement as a new interchange, but preservation is so critical that it is often taken for granted. An important measurement of preservation is that every one dollar invested in preventive maintenance of roadways and tracks prevents six dollars of

rehabilitation and saves twenty dollars of reconstruction. Overall, maintenance and preservation is anticipated to generate a five percent reduction in delay.

Key maintenance and preservation strategies include:

- *Fund the SHOPP Fully*—Investments in the SHOPP provide overall mobility and preservation benefit. In addition to the cost-benefit outcome mentioned above, another outcome is that good highway conditions save motorists \$558 each year, per vehicle in wear, tear and maintenance. Fully funding Proposition 42 helps free-up funds for the SHOPP.
- *Increase Revenues for Local Streets and Roads*—Caltrans has access to the SHOPP; cities and counties have access to gas tax subventions and local sales tax measures dedicated to transportation. However, cities and counties have had to make difficult choices this decade with subvention funds, where fungible, between roads and other essential services. The key outcomes are wear and tear savings to motorists and the tremendous cost-benefit ratio of prevention over reconstruction. Fully funding Proposition 42 has a positive impact on increasing revenues for local street and road rehabilitation.

Smart Land Use/Demand Management/Value Pricing

An axiom of transportation in California is that transportation investments mitigate for land use decisions made years before. For the past two decades this has been true. The tide is turning this decade as a minority of cities and counties begins to tie land-use decisions to available transportation capacity. The minority is adding members annually, often with the willing support of developers who now realize that enhanced mobility sells homes and office space. The transportation community is on the threshold of applying the discipline that the utilities have used to determine true capacity needs. Demand management and value pricing are old strategies in the utility sectors. They are a paradigm shift in transportation. *GoCalifornia* seeds the paradigm shift and projects a fifteen percent reduction in delay by incorporating such strategies as:

- *Encourage Local Jurisdictions to Make Land Use Decisions Based, in part, on Transportation Capacity*—*GoCalifornia* boldly states this strategy is not an objective but a way of doing business. Recent evidence suggests that jurisdictions are beginning to be self-motivated to connect land use to transportation. The key outcome of this connection is reduced travel demand, which directly relates to increased mobility and greater traveler choice of modes. The Regional Blueprints Grants are designed to be an incentive to municipal planning organizations that are ready to tackle the land use-transportation planning challenge.

- *Implement Demand Management Strategies*—Realigning the jobs/housing balance, encouraging transit-oriented development, and encouraging higher density residential and commercial development along transit and rail corridors will shift travel demand. Because of the paradigm shift noted above, it is too early to tell what an appropriate outcome for this particular strategy will be. It is likely that demand management strategies will result in a smoothing out of peak utilization of different modes (autos, buses, light rail, commuter rail). Once this smoothing out of utilization is understood, various players in the transportation community will be able to target operational and capacity improvements to enhance mobility, accessibility and throughput.
- *Implement Value Pricing*—Value pricing entails tolling and congestion pricing. *GoCalifornia* does not call for tolling in and of itself. Rather, tolling is a valuable strategy for managing demand and providing mobility choices for travelers such as toll lanes and High Occupancy Toll (HOT) lanes (High Occupancy Vehicle [HOV] lanes converted to tolls to enable solo drivers to pay for using the lanes). Tolling is also a strategy for raising revenue to pay for key projects. Taking a page from utilities, applying value pricing, or congestion pricing, in key congested corridors will further help smooth out peak utilization. Value pricing may actually be implemented in the short run in the goods movement arena with truck toll lanes. Value pricing will require legislation.

Intelligent Transportation Systems (ITS)/Traveler Information/Traffic Control/Incident Management

Technology-based strategies that facilitate flow, manage information and accident recovery generate benefits well in excess of costs. Overall, this strategy is designed to yield a 20 percent in congestion delay. ITS, traveler information and traffic control are elements of the SHOPP. Incident management is a joint effort between Caltrans and the Department of California Highway Patrol, as well as with local public safety agencies. California does a better job than most states with this strategy, but the state has a way to go before it matches the efforts of European nations, Japan and Singapore. As China rapidly creates a modern transportation network, ITS is becoming a key feature. Key strategies include:

- *Fully Fund and Implement the ITS Elements in the SHOPP*—ITS competes with pavement rehabilitation as the top two priorities of the SHOPP. Vehicles are technologically smarter than the infrastructure. The transportation industry is at the doorstep of making the infrastructure as smart as the vehicles in order to realize the safety, mobility, and preservation benefits of technology. The national Vehicle Infrastructure Integration (VII) effort is where California's ITS program is heading. California should be one of the nation's test sites for VII and the technologies involved in VII should be supported as a key economic

development strategy. The state will need to eliminate the competition between ITS and pavement rehabilitation by funding both appropriately to the benefits each can produce.

- *Improve Central and Field Element Operations and Maintenance*—Traffic control and enhanced traveler information depend on communication between loop detectors in the field and central office management centers. As described in the system monitoring and evaluation section above, ensuring that detectors perform is essential. Traveler information generates a benefit-cost ratio of fifteen to one; traffic control generates a benefit-cost ratio of ten to one.
- *Coordinate Incident Management Better*—A major accident wreaks havoc on safety and mobility. A rule of thumb is that it takes four minutes to clear every minute of delay caused by an accident—an hour of delay requires four hours for traffic to return to normal flow. Caltrans and the CHP have begun to work even more closely to manage and resolve major accidents on the state system. This coordination is beginning to yield reduced congestion and more accurate traveler information. Clearance time due to major incidents has decreased from 5.8 hours to 3.8 hours over the last two years. This translates into over one million vehicle hours of delay avoidance in the current calendar year. A major mudslide on Interstate 5 in the Grapevine area recently caused a closure of most of the highway. Caltrans and the CHP were able to clear the mudslide in four hours. More importantly, the two departments deployed traveler information strategies that helped divert travelers off of the interstate to other routes until it was safe to pass through the affected locations. Incident management efforts have a benefit-cost ratio of up to twenty to one.

Operational Improvements

As with other SHOPP elements, operational improvements seem plain vanilla until the benefit-cost ratios are analyzed. Auxiliary lanes, ramp metering and improvements, weigh stations, signs and lighting, and ITS combine to generate an additional five percent reduction in congestion. A way to look at operational improvements is how to squeeze more efficiency out of what has already been built. Like with a house, operational improvements involve doing better with what one already has, which requires ingenuity and a particular orientation. The key strategies are ones that have been mentioned already:

- *Fund and Implement the SHOPP Fully.*
- *Implement Safety Improvements.*

- *Implement ITS as part of the SHOPP.*
- *Deploy and Operate Central and Field Elements.*
- *Ensure Continuation of and Improve Transit/Rail Services.*

A reason that operational improvements is placed where it is in the pyramid is that these improvements represent what else needs to be done before looking to expanding the system and generating revenue for expansion. A re-striping project can generate both near-term and long-term benefit at a fraction of the cost of building a new lane. Adding incremental capacity on existing rail lines and at existing stations can be cost effective compared to building new capacity.

System Completion and Expansion

No doubt California needs more transportation capacity, just like the state needs more energy capacity and water capacity. But without a solid foundation of operational improvement and demand management strategies, transportation capacity enhancements—like those in energy and water supply—will not be as strategic or efficient. System completion and expansion account for a congestion delay reduction of ten percent, less than smart land use and ITS. Among the key strategies for system completion and expansion include:

- *Complete the urban HOV system for improved mobility and reliability and reduced congestion.*
- *Complete the State Interregional routes in the rural areas of the state for improved mobility and reliability and reduced congestion.*
- *Expand freight corridors serving port to border regions of the state for improved mobility.*
- *Complete regional priority routes to create parallel and complementary capacity to the state system for improved goods movement, mobility and safety.*
- *Expand existing transit and rail services for reduced congestion and increased transit ridership.*
- *Fund new urban commuter rail for reduced congestion and increased transit ridership.*
- *Expand intercity passenger rail for reduced congestion and increased transit ridership.*
- *Expand park and ride programs for reduced congestion.*

- *Improve bicycle and pedestrian routes to generate healthy traveling alternatives.*
- *Improve tribal roads, especially those connecting to major state facilities in order to improve mobility and accessibility.*

A list of the system completion and expansion projects for 2010, 2016, and 2025 is included in a separate System Completion and Expansion Binder.

System completion and expansion are a priority of the CTC and the state's transportation agencies. While it occupies the apex of the pyramid, state statutes put it at the bottom of state funding priorities. *GoCalifornia* adheres to state statutes but also recognizes the important role the CTC and regional agencies place on system expansion and completion. Near-term strategic and targeted investments in system expansion, particularly in the goods movement area, offer the promise of overall mobility benefit and innovative public-private partnerships.

***GoCalifornia* Implementation**

Specific reforms are necessary in order to effectively implement and achieve the benefits in mobility identified in the individual *GoCalifornia* strategies. Caltrans and regional agencies will require a sustained and uninterrupted funding stream, the authority to deliver projects more quickly and efficiently, and the ability to manage transportation corridors in a more comprehensive and assertive manner.

Proposition 42 Protection

It is imperative to protect the Proposition 42 funds for transportation and to eliminate the option to suspend the Proposition 42 allocation. Given the magnitude of the need that has been identified in *GoCalifornia*, the funding provided by the sales tax on gasoline is essential. With the certainty that this provides, as well as the other funding proposed in *GoCalifornia*, the construction industry and Caltrans can make the commitments to increase their capacity to deliver the substantial increase in infrastructure necessary to implement *GoCalifornia*.

GoCalifornia Project Delivery Improvements

Critical to *GoCalifornia* implementation is legislation to provide authority to deliver projects more quickly and efficiently through the use of design-build contracting, where the main contractor performs most design as well as construction services under one contract. Similarly, legislation is necessary to authorize the use of design-sequencing, where some construction can begin while design of other elements is being finished. Both of these techniques save time and therefore

money in the project delivery process. Construction costs have been increasing at a particularly fast pace in the last few years making these reforms even more valuable.

Legislation enabling public-private partnerships will also be key to attracting private capital that can fund priority infrastructure projects and other system completion projects. This approach is intended to be used where a predictable stream of revenue can be generated to repay private capital investments. This approach can be used to build High Occupancy Toll lanes, regular toll lanes and freight movement facilities.

Comprehensive Corridor Management

Finally, in order to manage corridors comprehensively and aggressively, legislation will be necessary to require ramp metering on the State system. The purpose of such legislation would be to bring all cities and counties into the ramp-metering program. Currently, cities and counties can refuse to participate in corridor ramp metering programs, even when other cities and counties in the corridor want to participate. Because ramp-metering works best on a corridor, or system basis, the failure of even one jurisdiction to participate means that no ramp metering can occur in the corridor. The result is significant recurrent congestion in that corridor.